

**METHOD AND APPARATUS USING A CIRCUIT MODEL
TO EVALUATE CELL/BATTERY PARAMETERS**

ABSTRACT OF THE DISCLOSURE

Testing apparatus senses the time-varying
5 electrical response of an electrochemical cell/battery
to time-varying electrical excitation. The cell/battery
may, or may not, be in service. Computation circuitry
responsive to the time-varying electrical response
evaluates elements of a unique circuit model
10 representation of the cell/battery. Performance
parameters and physical parameters are computed from
these element values. Computed performance parameters
include, but are not limited to, "total storage
capacity", "absolute stored charge", "state-of-charge",
15 "absolute cranking current", "fully charged cranking
current", and "state-of-health". Computed physical
parameters include, but are not limited to, "exchange
current", "maximum exchange current", "charge transfer
conductance", "maximum charge transfer conductance",
20 "double layer capacitance", and "maximum double layer
capacitance". Computed parameters are either displayed
to the user, employed to initiate an alarm, or used to
control a process such as charging the cell/battery.